

## **EXHIBIT A**

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ATTY DOCKET: T8466399US

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
MICHAEL SASGES ) Examiner: Phillip A. Johnson  
Application No.: 09/846,682 ) Group Art Unit: 2881  
Filed: May 2, 2001 )  
For: OPTICAL SENSING AND )  
CONTROL OF ULTRAVIOLET )  
FLUID TREATMENT DYNAMICS )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

DECLARATION OF INVENTOR UNDER 37 C.F.R. §1.131

I, Michael Sasges, having a post office address at 1711 Mortimer St., Victoria BC Canada V8P 3A9, hereby declare and say as follows:

I, I am the sole inventor of the subject matter disclosed and claimed in independent Claims 1, 7 and 15 of the above-identified United States patent application. In preparing this Declaration, I have reviewed the following documents:

- the above-identified United States patent application
- the Official Action dated March 12, 2003;
- United States patent 6,057,917 [Petersen et al. (Petersen)] and
- the Response being submitted concurrently herewith.

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2. I conceived the subject matter of at least independent Claims 1, 7 and 15 prior to the February 26, 1999 priority date of Petersen. Furthermore, I acted to diligently reduce to practice the subject matter of the invention recited in independent Claims 1, 7 and 15, from the conception thereof up to at least February 26, 1999, in NAFTA member country Canada. Moreover, from a date prior to February 26, 1999, I diligently continued to work to refine the subject matter of the invention recited in independent Claims 1, 7 and 15, and I aver that a constructive reduction to practice of that subject matter occurred at least as of the filing of United States Patent Application No. 09/846,682 on May 2, 2001.

3. Enclosed as Exhibit 1 is a copy of an excerpt from my laboratory notebook illustrating a sensor having a silicon carbide (SiC) photodiode. Also enclosed as Exhibits 2 and 3 are copies of drawings illustrating the major components (sensor pre-assembly in Exhibit 2 and port probe in Exhibit 3) of a sensor assembly for use in an ultraviolet light fluid sterilizing apparatus sold by Trojan Technologies Inc. under the tradename System UV8000™ (see title block of the drawings in Exhibits 2 and 3). Also enclosed herewith as Exhibit 4 is an internal presentation extolling the use of a silicon carbide photodiode in place of an "existing photodiode" in a radiation sensor. Also enclosed herewith as Exhibit 5 is a brochure (&gt; 1998) illustrating the ultraviolet light fluid sterilizing apparatus sold by Trojan Technologies Inc. under the tradename System UV8000™ - page 5 of Exhibit 5 describes sensor (incorporating the "existing photodiode") used to monitor ultraviolet radiation intensity.

4. I aver that, prior to February 26, 1999, I conceived of using a silicon carbide photodiode (Exhibits 1 and 4) in a sensor assembly (Exhibits 2 and 3) for an ultraviolet light fluid sterilizing apparatus such as the one sold by Trojan Technologies Inc. under the tradename System UV8000™ (Exhibit 5). I aver that each document of Exhibits 1-

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5 was created prior to February 26, 1999 and that I personally created the documents of Exhibits 1 and 4 prior to February 26, 1999. I aver that the documents of Exhibits 1-5 also provide evidence that the invention was being diligently reduced to practice from the conception thereof up to at least February 26, 1999.

5. Enclosed as Exhibit 6 is a copy of experimental data showing continued development of the invention recited in independent Claims 1, 7 and 15. This data was generated from field experiments which evidence that, during the period from a date prior to February 26, 1999 up until the filing of United States Patent Application No. 09/846,682 on May 2, 2001, I (and others under my direction at Trojan Technologies Inc.) diligently continued to work to refine the subject matter of the invention recited in Claims 1, 7 and 15. I aver that a constructive reduction to practice of that subject matter occurred at least as of May 2, 2001.

6. The combination of Exhibits 1-5 show an invention directed to an ultraviolet light fluid sterilizing apparatus including: at least one ultraviolet light source configured to irradiate a fluid with ultraviolet light to sterilize the fluid; an ultraviolet light sensitive silicon carbide photodiode, said photodiode capable of generating a signal proportional to the intensity of ultraviolet light detected by said photodiode; and a sealed outer housing comprising an optically transparent window, said silicon carbide photodiode located inside said housing and adjacent said transparent window (see Claim 1).

7. The combination of Exhibits 1-5 show an invention directed to ultraviolet light fluid sterilization apparatus including: a fluid chamber; at least one ultraviolet light source configured to emit ultraviolet light into said fluid chamber; and at least one ultraviolet light sensor comprising a silicon carbide photodiode (see Claim 7).

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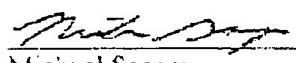
8. The combination of Exhibits 1-5 shows an invention directed to a method of sterilizing a fluid utilizing an ultraviolet light fluid sterilization apparatus, the sterilization apparatus including a fluid chamber, at least one ultraviolet light source, and at least one ultraviolet light sensor, each ultraviolet light source configured to emit ultraviolet light into the fluid chamber, and each ultraviolet light sensor comprising a silicon carbide photodiode, said method including the steps of: flowing a fluid into the chamber of the ultraviolet light sterilization apparatus; irradiating the fluid with ultraviolet light from the at least one ultraviolet light source of the sterilization apparatus; measuring the intensity of the ultraviolet light in the fluid chamber with the ultraviolet light sensor; sensing an output signal from the ultraviolet light sensor with the controller; and adjusting the level of ultraviolet light intensity in the chamber with an output signal from the controller to the light source (see Claim 15).

9. Therefore, it is evident that United States Patent Application No. 09/846,682 (filed on May 2, 2001) claims an invention that was conceived of prior to February 26, 1999 and was diligently reduced to practice during the period from a date prior to February 26, 1999 up until the filing of United States Patent Application No. 09/846,682 on May 2, 2001.

10. I hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

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Declared and signed at Victoria, British Columbia, Canada.

  
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Michael Sasges

9 SEP 2003  
September 9, 2003